

ER/WM&I DDT

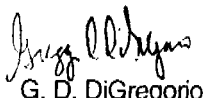
Source/Driver: (Name & Number from ISP, IAG milestone, Mgmt. Action, Corres. Control, etc.)

Closure #: (Outgoing Correspondence Control #, if applicable)


N/A
Due Date


W. R. Sproles

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Kaiser-Hill Director

Document Subject:

Transmittal of Final Report for the IHSS 129, Tank #4 Source Removal Project - AMT-088-97

KH-00003NS1A

August 11, 1997

Discussion and/or Comments:

RMRS is pleased to provide copies of the subject report for transmittal to DOE for their transmittal to EPA and CDPHE. The Final Report for the IHSS 129, Tank #4 Source Removal was prepared using the language in the Draft Implementation Guidance Document. The report will also be used as a final closure document for the sites addressed under the Industrial Area Operable Unit (OU) Record of Decision (ROD).

Enclosed are nine copies for distribution to Kaiser-Hill, the DOE, CDPHE, and the EPA. If you have questions please contact Wayne Sproles at extension 5790.

Attachment:
As Stated

cc:
M. C. Broussard
C. Crawford
N. S. Demos
W. R. Sproles
A. M. Tyson
Correspondence Control (2)

ADMIN RECORD

Final Report for the IHSS 129, Tank #4 Source Removal Project

Prepared for:

U.S. Department of Energy
Rocky Flats Field Office
Rocky Flats Environmental Technology Site
Golden, Colorado

Prepared by:

Rocky Mountain Remediation Services
Golden, Colorado

August 11, 1997

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ACRONYM LIST

DOE	Department of Energy
IGD	Implementation Guidance Document
IHSS	Individual Hazardous Substance Site
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RMRS	Rocky Mountain Remediation Services
UST	Underground Storage Tank
VOC	Volatile Organic Compound(s)

1.0 INTRODUCTION/PURPOSE

This completion report describes the process initiated for Source Removal/Risk Reduction of Individual Hazardous Substance Site (IHSS) 129 which pertains to one of four Underground Storage Tanks (USTs) located immediately east of Building 443 and within the Industrial Area Operable Unit (DOE, 1996a). The scope of this removal action (also appropriately designated a maintenance action) involved characterization of the Tank #4 contents, removal of the solvent contaminated fuel oil and associated water in the tank, removal of immediate supply and return lines including asbestos insulation of those lines, proper waste segregation and disposal, thorough rinsing of the tank with water and/or nonhazardous degreasing agents, collection of final rinsate samples after the tank passes intensive visual inspection and filling the tank interior with polyurethane foam to stabilize any residual contaminants and to prevent possible infiltration of surface water and/or groundwater. Analytical data for contaminants identified before and after this source removal are summarized in Tables 2-1 and 3-1 and verify that this action was completed in accordance with the *Proposed Action Memorandum for the Contaminant Stabilization of Underground Storage Tanks* (RMRS, 1996). The validated results will be evaluated along with data usability as part of the quality control for the project and submitted as an addendum to this report.

2.0 SITE HISTORY

The Building 443 #4 Fuel Oil Tank, within IHSS 129, was one of four tanks used to supply No. 6 fuel oil to the Building 443 steam plant boilers (*Historical Release Report for the Rocky Flats Plant*, DOE 1992). The tanks are oriented longitudinally in an east-west direction, approximately 16 feet due east of the building. The tanks are constructed of carbon steel and are approximately 11 feet in diameter and 27 feet in length, with a total storage capacity of approximately 19,000 gallons each. The tops of the tanks are approximately 2 feet below ground surface. Since Tank #4 was the only tank that received listed hazardous waste in the form of spent solvents, it was the only tank in IHSS 129 requiring source removal.

Four steel supply and return lines run from each of the four tanks to Building 443. The four lines, located in a concrete pipe chase, include: a steam line to supply the heaters located inside each tank, a return condensation line from the heaters, a fuel oil supply line to Building 443, and a return line for oil being circulated from the Building 443 boilers.

Tank #4 was used between 1967 and 1984 primarily to store No. 6 fuel oil. However, during the 1970s, Tank #4 was also used to store approximately 18,500 gallons of No. 2 diesel oil. In 1984, air compressors were installed in Building 443. The compressors generated a water/compressor oil mixture that was stored in Tank #4 from 1984 to 1986. From 1967 to 1986, small volumes of used solvents were blended with fuels in Tank #4 for energy recovery. Historically, approximately 55 gallons of solvents were used in Building 443 every two years.

Dip-stick test results from December 11, 1995 showed approximately 2-4 inches of oil on top of 18,500 gallons of water, with approximately 4-6 inches of sludge on the bottom. Table 2-1 lists solvent concentrations in Tank #4 from pre-remediation sampling events.

TABLE 2-1
Pre-Remediation VOCs Detected in Tank #4, IHSS 129

Constituent	Liquid (µg/L) October 20, 1994	Liquid (µg/L) April 22, 1996
Acetone	70	35
Chloroform	Not Detected	Not Detected
1,1-Dichloroethene	270	210
1,1-Dichloroethane	130	77
1,2 Dichloroethene	Not Detected	72
Trichloroethene	16 J	63
1,1,1-Trichloroethane	750	630
Trichlorofluoromethane	1700	Not Analyzed
Tetrachloroethene	1900	2300

Note: J=Analyte detected below method practical quantitation limit

3.0 REMEDIATION ACTIVITIES

Prior to initiation of any source removal activities at IHSS 129, lockout/tagout was performed and verified on numerous steam trace lines, electrical circuits, and supply/return lines. Asbestos insulation, containing No. 6 fuel oil, was removed from approximately forty feet of pipe and containerized. All abandoned piping was cut and capped. The fuel oil in the associated concrete pipe chase and concrete fill vault was solubilized using HEP-1®, a non-hazardous degreaser, and pumped into a high density polyethylene holding tank for temporary storage.

The aqueous-phase liquid in Tank #4 was pumped from the tank and processed through an oil/water separator. Tank entry was required to remove the solidified oil in the bottom of the tank. HEP-1® and non-sparking tools were used to remove the remaining fuel oil and sludge in the tank. The rinse water, prior to application, was analyzed to assess the levels of contaminants potentially present (see Table 3-1). The tank was then rinsed a total of three times. HEP-1® solution was used during the first rinse to remove any residual fuel oil. The tank was rinsed a second time with high pressure hot water and a mild detergent. The final, or third rinse, was performed using high pressure hot water. This final water rinse was sampled to determine the residual levels of contaminants in the tank (See Table 3-1). Appendix A presents a summary of SW-846 Method 8240A analytical results and the associated laboratory quantitation report for the rinsate sample. During the first tank entry and at the completion of tank rinsing, the interior of the tank was inspected and no breaches were found. After the completion of tank rinsing, the tank was visually inspected. The results of the inspection indicated that, with the exception of a small amount of sludge, the tank was clean and appeared to be in sound structural condition with no visible breaches. The tank was filled with 5,135 lbs of polyurethane foam.

Table 3-1
Residual VOCs from Tank #4, IHSS 129

Constituent	Rinse Water Prior to Application (µg/L)	Final Rinsate Sample (µg/L)
Acetone	5.6 J	76 J
Chloroform	73	40
1,1-Dichloroethene	Not Detected	Not Detected
1,1-Dichloroethane	Not Detected	Not Detected
1,2-Dichloroethene	Not Detected	Not Detected
Trichloroethene	Not Detected	Not Detected
1,1,1-Trichloroethane	Not Detected	2.1 J
Trichlorofluoromethane	Not Detected	Not Detected
Tetrachloroethene	Not Detected	20

Note: J=Analyte detected below method practical quantitation limit

4.0 WASTE DISPOSAL

Approximately 16,500 gallons of aqueous-phase liquid removed from the tank was shipped to the Building 891 Consolidated Water Treatment Facility for treatment. The asbestos insulation removed from the piping was containerized, characterized as nonhazardous, and disposed at the Chemical Waste Management landfill in Kettleman, California. Approximately 4,000 gallons of No. 6 fuel oil, HEP-1®, detergent, and rinsate were shipped offsite, blended at Chemical Waste Management's facility in Henderson, Colorado, and incinerated at Systech Lafarge in Fredonia, Kansas. Due to the unknown configuration of the heating coil inside Tank #4 prior to the start of work, the initial volume of water in Tank #4 was overestimated.

5.0 CONCLUSIONS

This removal action eliminated the source of contamination at this location and is consistent with long term remedial goals of the Industrial Area and IHSS 129. However, this action does not constitute the final remedy for IHSS 129. Tank #4 is the only tank in IHSS 129 that is subject to Resource Conservation and Recovery Act (RCRA) interim status closure requirements. By removing the source and foaming, Tank #4 is considered "RCRA stable" as defined in the Rocky Flats Environmental Technology Site (RFETS) RCRA Part Permit (CDPHE, 1997) and will be addressed under Rocky Flats Cleanup Agreement (RFCA) (DOE, 1996a) and the Draft Implementation Guidance Document (IGD) (DOE, 1996b). Similarly, final closure will be accomplished consistent with the RFCA and IGD. Notification of the IHSS 129 Project was

provided to the agencies in correspondence dated March, 1996 (See Appendix B). Validated results will be evaluated for data usability as part of the quality control for the project and submitted as an addendum to this report.

6.0 REFERENCES

CDPHE, 1997, *Rocky Flats Environmental Technology Site RCRA Permit CO-97-05-30-01*, Rocky Flats Environmental Technology Site, Golden, CO. June 30.

DOE, 1992, *Historical Release Report for the Rocky Flats Plant*, Rocky Flats Plant, Golden, CO.

DOE, 1996a, *Final Rocky Flats Cleanup Agreement*, Rocky Flats Environmental Technology Site, Golden, CO.

DOE, 1996b, *Draft Implementation Guidance Document*, Rocky Flats Environmental Technology Site, Golden, CO.

RMRS, 1996, *Proposed Action Memorandum for the Contaminant Stabilization of Underground Storage Tanks*, RF/ER-96-0021.UN, April.

APPENDIX A
Analytical Summary Results for
Final Rinsate Sample

Quanterra Denver

VOLATILE REPORT SW-846 Method 8240

Data file : /chem/J.i/090696.b/j3893.d

Lab Smp Id: 51266-02

Client Smp ID: 51266-02

Inj Date : 06-SEP-96 14:34

Operator : SJONES

Inst ID: J.i

Smp Info : 51266-02 T N 00018RM

Misc Info :

Comment : SOP# LM-RMA-3001

Method : /chem/J.i/090696.b/j8240ap1.m

Meth Date : 06-Sep-1996 08:47

Quant Type: ISTD

Cal Date : 06-SEP-96 08:25

Cal File: j3878.d

Als bottle: 2

Dil Factor: 1.000

Integrator: HP RTE

Compound Sublist: hsl.sub

Target Version: 3.12

Concentration Formula: Uf * 5/Vo

Name	Value	Description
Uf	1.000	ng unit correction factor
Vo	5.000	Sample Volume purged (mL)

Plx1
KE 9/15/96

Compounds	QUANT SIG	MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
							(ug/L)	(ug/L)
1 dichlorodifluoromethane		85.00		2.388		Compound Not Detected.		
4 Chloromethane		50.00		2.551		Compound Not Detected.		
5 Vinyl Chloride		62.00		2.731		Compound Not Detected.		
6 Bromomethane		94.00		2.092		Compound Not Detected.		
7 Chloroethane		64.00		3.201		Compound Not Detected.		
10 Acrolein		56.00		4.049		Compound Not Detected.		
9 Trichlorofluoromethane		101.00		3.618		Compound Not Detected.		
12 1,1-Dichloroethene		96.00		4.330		Compound Not Detected.		
15 Carbon Disulfide		76.00		4.573		Compound Not Detected.		
14 Iodomethane		142.00		4.428		Compound Not Detected.		
11 Trichlorotrifluoroethane		151.00		4.248		Compound Not Detected.		
13 Acetone		43.00	4.245	4.248 (0.597)		76162	76.1013	76.1013
21 trans-1,2-Dichloroethene		96.00		5.240		Compound Not Detected.		
20 Acrylonitrile		53.00		5.168		Compound Not Detected.		
22 Methyl t-butyl ether		73.00		5.240		Compound Not Detected.		
19 Ethanol		46.00		3.814		Compound Not Detected.		
23 Hexane		57.00	5.617	5.620 (0.789)		15811	1.81625	1.81625(a) <i>MTL</i>
24 1,1-Dichloroethane		63.00		5.836		Compound Not Detected.		
25 Methyl Acetate		43.00	5.817	5.808 (0.614)		28936	2.92738	2.92720(a)
27 cis-1,2-Dichloroethene		96.00		6.739		Compound Not Detected.		
28 2-Butanone		72.00		6.757		Compound Not Detected.		
33 Bromochloromethane		128.00	7.115	7.118 (1.000)		250438	50.0000	
34 Tetrahydrofuran		42.00		7.208		Compound Not Detected.		

Compounds	QUANT SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
						ON-COLUMN (ug/L)	FINAL (ug/L)
35 Chloroform	83.00	7.259	7.262	(1.020)	473688	40.1272	40.1272
36 1,1,1-Trichloroethane	97.00	7.548	7.551	(0.865)	22187	2.10833	2.10833(a)
37 Carbon Tetrachloride	117.00		7.822		Compound Not Detected.		
40 Benzene	78.00		8.129		Compound Not Detected.		
38 1,2-Dichloroethane-d4	63.00	8.033	8.038	(1.129)	267182	47.5713	47.5713
41 1,2-Dichloroethane	62.00		8.147		Compound Not Detected.		
42 1,4-Difluorobenzene	114.00	8.721	8.724	(1.000)	1200155	50.0000	
43 Trichloroethene	130.00		9.122		Compound Not Detected.		
44 1,2-Dichloropropane	63.00		9.428		Compound Not Detected.		
45 Dibromomethane	174.00		9.609		Compound Not Detected.		
47 1,4-Dioxane	88.00		9.627		Compound Not Detected.		
48 Bromodichloromethane	83.00	9.841	9.844	(1.128)	13692	1.10211	1.10211(a)
49 2-Chloroethyl vinyl ether	63.00		10.259		Compound Not Detected.		
50 cis-1,3-Dichloropropene	75.00		10.475		Compound Not Detected.		
52 Toluene-d8	98.00	10.823	10.836	(0.847)	960966	50.2981	50.2981
53 Toluene	92.00		10.927		Compound Not Detected.		
51 4-Methyl-2-pentanone	43.00	10.833	10.874	(0.847)	1186	1.18182	1.18182(a)
54 trans-1,3-Dichloropropene	75.00		11.234		Compound Not Detected.		
58 Tetrachloroethene	164.00	11.700	11.685	(0.915)	188951	20.2579	20.2579
57 1,1,2-Trichloroethane	97.00		11.486		Compound Not Detected.		
55 Ethyl methacrylate	69.00		11.360		Compound Not Detected.		
61 1,2-Dibromoethane	107.00		12.172		Compound Not Detected.		
56 2-Hexanone	43.00		11.811		Compound Not Detected.		
62 Chlorobenzene-d5	117.00	12.783	12.786	(1.000)	913227	50.0000	
63 Chlorobenzene	112.00		12.840		Compound Not Detected.		
65 Ethylbenzene	106.00		12.966		Compound Not Detected.		
66 m and p-Xylene	106.00		13.129		Compound Not Detected.		
67 o-Xylene	106.00		13.652		Compound Not Detected.		
68 Styrene	104.00		13.671		Compound Not Detected.		
69 Bromoform	173.00		13.923		Compound Not Detected.		
72 Bromofluorobenzene	95.00	14.335	14.338	(1.121)	705430	51.3922	51.3922
74 1,2,3-Trichloropropane	110.00		14.573		Compound Not Detected.		
73 1,1,2,2-Tetrachloroethane	83.00		14.519		Compound Not Detected.		
75 1,1,2-Dichloro-2-butene	53.00	14.480	14.531	(1.183)	10742	6.73944	6.73944(a)
76 m-Dichlorobenzene	146.00		15.674		Compound Not Detected.		
77 p-dichlorobenzene	146.00		15.783		Compound Not Detected.		
78 o-Dichlorobenzene	146.00		16.180		Compound Not Detected.		
18 Methylene Chloride	84.00		4.862		Compound Not Detected.		
70 isopropyl benzene	105.00		14.140		Compound Not Detected.		
60 Dibromochloromethane	129.00		12.028		Compound Not Detected.		
M 2 Xylene (total)	106.00		1.000		Compound Not Detected.		
N 1,2-Dichloroethane (total)	96.00		1.000		Compound Not Detected.		

QC Flag Legend

- a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
- Q - Qualifier signal failed the ratio test.

APPENDIX B

Correspondence

DOE ORDER #

96-RF 01600

DIST.	LTR	ENC
ENSUSSEN, STAN		
JHL, TONY		
URD, BOB		
LL, JOHN		
UNI, VIK		
URTINEZ, LEN		
SANALLY, JIM		
SKAY, BOB		
BRIEN, GEORGE		
KOR, NANCY		
XORHEIS, GARY		
LLER, CAL		

March 12, 1996

96-RF-01600

Dave George
Environmental Restoration
DOE, RFFO

NOTIFICATION OF THE IHSS 129 PROJECT - AKS-008-96

In response to the November 28, 1995 meeting with the Colorado Department of Public Health and Environment (CDPHE), this correspondence provides information regarding fiscal year 1996 (FY96) work scope for individual Hazardous Substance Site (IHSS) 129. As a result of the FY96 budget reduction, the work scope for IHSS 129 has been reduced to address only Tank #4. The FY96 work scope for IHSS 129 will include the following activities: remove contents from Tank #4, rinse Tank #4 to remove bulk contamination, process the media through an oil/water separator, treat the water phase at the Sitewide Treatment Facility (SWTF), package and ship the oil phase to an approved offsite treatment facility, fill Tank #4 with a poly-based foam, and install caps or blind flanges on all abandoned piping. The filling of Tank #4 with foam will be performed in accordance with the Proposed Action Memorandum for the Contaminant Stabilization of Underground Storage Tanks. The remaining work associated with Tank #4 is considered a routine maintenance action and will be completed under the Rocky Flats Environmental Technology Site Work Control Program. A completion report will be prepared to document IHSS 129 field activities. Draft letters submitting this information to CDPHE and EPA are enclosed.

The treatment of IHSS 129 environmental media at the SWTF, located in Building 891, coincides with the *Accelerated Action Plan for Interagency Agreement (IAG) Underground Storage Tanks Containing RCRA-Regulated Materials* (DOE/RFFO, December 1995). The following table provides information regarding the origin of the environmental media, the expected volume, and applicable hazardous waste codes for proper management prior to treatment.

IHSS	TANK #	CONTENTS	APPROXIMATE VOLUME (gallons)	RCRA WASTE CODES	ADDITIONAL INFORMATION
129	Tank #4	infiltrated groundwater and surface water	19,000	F001	contaminated by fuel c residues and small amc of solvents
129	Tank #4	decontamination rinsewater	5,000	F001	contaminated by fuel c residues and small amc of solvents

Once the environmental media has been treated, it will no longer contain hazardous waste constituents and will be part of the routine discharge from the SWTF. Samples of the effluent will be collected and analyzed to confirm that the Applicable or Relevant and Appropriate Requirements (ARARs) have been met. The more stringent of the Operable Unit 1 and Operable Unit 2 ARARs will be used as the discharge limits for this media.

lahl, T. G.		
rd, Russ		
amore, Drew		
r, Kent		
n, Steve		
medy, Colburn		
oud, Russ		
er, Gary		
en, Ann	X	X
nauer, Annette		
melt, Karen		

RES. CONTROL	X	X
MIN RECORD/080		
FFIC		
5/11303		

CLASSIFICATION:

CLASSIFIED		
IDENTICAL		
REY		

HORIZONTAL CLASSIFIER

SIGNATURE:

npt per CEX-266-95

3-12-96

REPLY TO RFP CC NO.:

ACTION ITEM STATUS:

PARTIAL/OPEN

☐

CLOSED

LTR APPROVALS:

AKS

SIG. & TYPIST INITIALS:

AKS :bag

69 (Rev. 4/25/95)


Kaiser-Hill Company, L.L.C.

Courier Address: Rocky Flats Environmental Technology Site, State Hwy. 93 and Cactus, Rocky Flats, CO 80007 • 303.966.7000

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D. George
96-RF-01600
March 12, 1996
Page 2

If you have any questions regarding this issue, please contact me at 966-9886.



Ann Sieben
ERWM & I Operations
Kaiser-Hill Company, L.L.C.

AKS:bag

Orig. and 1 cc - D. George

Enclosures:
As Stated (2)